Use Voltage Divider Rule to find $V_1$.

**Step 1.** Identify the series resistances responsible for voltage drops.

The $1 \, \Omega$ resistor is in series with the $5 \, \Omega$ resistor. This is easier to see after rearranging the sketch as shown in the second schematic.

Voltage $V_1$ is in the “reverse” polarity that we typically see it. While this is not inherently a problem, it can lead to confusion in the sign of the final voltage. We will define $V_3 = -V_1$ for the comfort of the aspiring engineering student. Around the loop we get:

$$12 - V_3 - V_2 = 0$$

$$\Rightarrow V_3 + V_2 = 12$$

Which tells us that $12 \, V$ is being divided by the two resistor voltages, $V_3$ and $V_2$.

**Step 2.** Apply KVL to equate the sum of the voltage drops to the voltage being divided.

**Step 3.** Apply VDR.

$$V_k = \frac{R_k}{R_{eq}}V$$

$$V_3 = \frac{1}{1 + 5}12 = \frac{1}{6}12 = 2 \, V$$

$$V_1 = -V_3 = -2 \, V$$

Answer: $V_1 = -2 \, V$